

APPENDIX G

GENERAL POST-CLOSURE PLAN

TABLE OF CONTENTS

LIST OF TABLES.....	ii
LIST OF ABBREVIATIONS/ACRONYMS.....	iii
GENERAL POST-CLOSURE PLAN	G-1
G.1 GENERAL POST-CLOSURE INFORMATION.....	G-1
G.1.1 Closure Performance Standard	G-2
G.1.2 Post-Closure Care and Alternative Requirements	G-2
G.1.3 Amendment of the Post-Closure Plan	G-4
G.1.4 Post-Closure Cost Estimate, Financial Assurance, and Liability Requirements....	G-5
G.1.5 Post-Closure Certification.....	G-5
G.1.6 Security	G-5
G.1.7 Survey Plat and Post-Closure Requirements.....	G-6
G.1.8 References	G-7

LIST OF TABLES

<u>TABLE NO.</u>	<u>TITLE</u>
G-1	Current Land Disposal Units at Los Alamos National Laboratory Subject to Post-Closure Requirements

LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
40 CFR	Code of Federal Regulations, Title 40
CMS	Corrective Measures Study
DOE/NNSA	U.S. Department of Energy, National Nuclear Security Administration
EPA	U.S. Environmental Protection Agency
LANL	Los Alamos National Laboratory
LASO	Los Alamos Site Office
NMED	New Mexico Environment Department
SWMU	solid waste management unit

APPENDIX G

GENERAL POST-CLOSURE PLAN

This appendix describes general post-closure activities applicable to the regulated hazardous and/or mixed waste management units at Los Alamos National Laboratory (LANL). The general post-closure information presented in this appendix addresses post-closure of land-based units. The information provided in this appendix is submitted to address applicable post-closure requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC) § 270.14(b)(13), revised June 14, 2000 [6-14-00], and 20.4.1 NMAC, Subpart V, Part 264, Subparts G and H [6-14-00].

Detailed post-closure information and procedures for regulated units at LANL are addressed in the following documents:

- “Closure/Post-Closure Plan for the Technical Area 54 Area G Landfills (Pit 29 and Shaft 124),”
- “Compliance Demonstration with 40 CFR 264, Subparts G and F under Corrective Action Procedures for Material Disposal Area H at Technical Area 54,” and
- “Closure/Post-Closure Plan for the Technical Area 54 Area L Landfill (Shafts 1, 13-17, and 19-34 and Impoundments B and D).”

The Area G landfills last received hazardous waste in 1986 (Pit 29) and 1987 (Shaft 124). The Area H landfill (Shaft 9) last received hazardous waste in 1986. The Area L landfill (Shafts 1, 13-17, and 19-34 and Impoundments B and D) last received hazardous waste in 1985. Post-closure activities for land-based units at LANL will meet the closure performance standards described in Section G.1.1.

The approved post-closure plan(s) and any approved revisions will be kept on file at the U.S. Department of Energy, National Nuclear Security Administration (DOE/NNSA) Los Alamos Site Office (LASO), in accordance with 20.4.1 NMAC § 264.118(c). Certification of completion of post-closure care in accordance with 20.4.1 NMAC § 264.120 [6-14-00] is discussed in Section G.1.5.

G.1 GENERAL POST-CLOSURE INFORMATION

This section is prepared in accordance with the requirements of 20.4.1 NMAC § 270.14(b)(13) and 20.4.1 NMAC, Subpart V, Part 264, Subparts G and H [6-14-00], as applicable.

Document: LANL General Part B
Revision No.: 2.0
Date: August 2003

G.1.1 Closure Performance Standard [20.4.1 NMAC § 264.111]

Post-closure of the regulated units addressed in the plans cited above will meet the following performance standards:

- Minimize the need for further maintenance
- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or atmosphere
- Comply with the applicable closure and post-closure requirements of 20.4.1 NMAC, Subpart V, Part 264, Subparts G and I through DD [6-14-00].

For land disposal units and other units that cannot be closed by removal and decontamination, closure will be accomplished by stabilizing, as necessary, the wastes and/or waste residues that remain in place. Known land disposal units at LANL are identified in Table G-1. Post-closure of such units will be accomplished under alternative closure requirements, as discussed in Section G.1.2 below, to meet post-closure care requirements.

G.1.2 Post-Closure Care and Alternative Requirements [20.4.1 NMAC § 264.117]

In accordance with 20.4.1 NMAC § 264.117(a)(1), post-closure care for each land-based unit will begin after completion of closure of the unit and will continue for 30 years. Post-closure care of the regulated unit under alternative requirements will begin after closure is completed. Closure of land-based units will be deemed complete when closure in place has been verified, the closure certification has been submitted to the New Mexico Environment Department (NMED), and the NMED has approved the closure. Alternative closure requirements are discussed below. At any time preceding partial closure or during the post-closure period, the Secretary of the NMED may shorten the post-closure care period if all disposal units at the facility are closed and it is determined that the reduced period is sufficient to protect human health and the environment, in accordance with 20.4.1 NMAC § 264.117(a)(2)(i). Alternatively, the Secretary of the NMED may extend the post-closure care period if it is determined that the extended period is necessary to protect human health and the environment, in accordance with 20.4.1 NMAC § 264.117(a)(2)(ii).

As required by 20.4.1 NMAC § 264.117(a)(1)(i) and (ii), post-closure care of the existing regulated units at LANL will consist of maintenance, monitoring, and reporting, as appropriate and in accordance with the requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart F, and 20.4.1

NMAC § 264.310. Post-closure care activities will follow the approved post-closure plan, in accordance with 20.4.1 NMAC § 264.117(d).

Post-closure activities for the existing regulated units may be accomplished under alternative requirements pursuant to 20.4.1 NMAC § 264.118(b)(4). This is consistent with U.S. Environmental Protection Agency (EPA) guidance (EPA, 1998) because the existing regulated units at LANL are situated among solid waste management units (SWMU), releases potentially originating from both the regulated unit and the SWMU(s) have or are likely to have occurred, and the alternative requirements will meet the closure performance standards set forth in 20.4.1 NMAC § 264.111. The EPA guidance discusses the transfer of the closure and post-closure process to the facility corrective action process as an appropriate mechanism to address this situation. Therefore, some post-closure procedures for the regulated units will be established as part of the corrective measures to be identified for the ongoing corrective action program at LANL.

In such circumstances, if corrective measures are deemed necessary to protect human health and the environment, they will be analyzed, selected, and implemented during the Corrective Measures Study (CMS)/Corrective Measures Implementation process and the most current and approved Installation Work Plan for the Environmental Restoration Project. The selected corrective measures will include the alternative requirements for post-closure of the regulated unit in a manner that complies with the requirements of 20.4.1 NMAC § 264.110(c)(2), and as approved by the NMED.

Therefore, the detailed post-closure plans for the regulated units at LANL are linked to the appropriate CMS reports and Statements of Basis associated with a permit modification for selection and implementation of corrective measures for the SWMUs associated with the regulated unit. The post-closure plans meet the requirements of 20.4.1 NMAC § 264.118(b) and identify the activities that will be carried on after closure of each disposal unit and the frequencies at which these activities will be performed to comply with 20.4.1 NMAC, Subpart V, Part 264, Subpart F, and 20.4.1 NMAC § 264.310(b). The plans include a description of the monitoring activities and frequencies; a description of the planned maintenance activities and frequencies; the name, address, and phone number of the person or office to contact about the unit during the post-closure care period; and either the alternative requirements that apply to the regulated unit or a reference to the permit modification or other enforceable document that will contain those requirements.

G.1.3 Amendment of the Post-Closure Plan [20.4.1 NMAC § 264.118(d)]

In accordance with 20.4.1 NMAC § 264.118(d)(1) [6-14-00], LANL may submit a written notification of or request for a permit modification to authorize a change in the approved post-closure plan at any time during the active life of the facility or during the post-closure care period. In accordance with 20.4.1 NMAC § 264.118(d)(2) [6-14-00], LANL will submit a written notification of or request for a permit modification to authorize a change in the approved post-closure plan whenever:

- There are changes in operating plans or facility design that affect the approved post-closure plan
- There is a change in the expected year of final closure, if applicable
- Events which occur during the active life of the facility, including partial and final closures, affect the approved post-closure plan
- LANL requests the Secretary of the NMED to apply alternative requirements to a regulated unit under 20.4.1 NMAC § 264.90(f) and/or § 264.110(c).

The written notification or request will include a copy of the amended post-closure plan for review or approval by the NMED, in accordance with 20.4.1 NMAC § 264.118(d).

LANL will submit a written request for a permit modification at least 60 days prior to the proposed change in unit design or operation, or no later than 60 days after an occurrence of an unexpected event that affects the post-closure plan. The Secretary of the NMED will approve, disapprove, or modify this plan in accordance with the procedures in the Code of Federal Regulations, Title 40 (40 CFR), Part 124, and 20.4.1 NMAC, Subpart IX, Part 270. The approved post-closure plan will become a permit condition, in accordance with 20.4.1 NMAC § 270.32.

The Secretary of the NMED may request modifications to the plan under the conditions presented in the bulleted items above. LANL will submit the modified plan no later than 60 days after the Secretary's request. Any modifications requested by the Secretary will be approved in accordance with the procedures in 40 CFR, Part 124, and 20.4.1 NMAC, Subpart IX, Part 270.

G.1.4 Post-Closure Cost Estimate, Financial Assurance, and Liability Requirements [20.4.1 NMAC § 264.140(c)]

In accordance with 20.4.1 NMAC § 264.140(c) [6-14-00], LANL, as a federal facility, is exempt from the requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart H [6-14-00], to provide a cost estimate, financial assurance mechanisms, and liability insurance for post-closure actions.

G.1.5 Post-Closure Certification [20.4.1 NMAC § 264.120]

Within 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, LANL will submit to the Secretary of the NMED, by registered mail, a certification that the post-closure care period for the unit was performed in accordance with the approved post-closure plan. The certification will be signed by the appropriate DOE/NNSA and LANL officials and by an independent, registered professional engineer. Documentation supporting the independent, registered professional engineer's certification will be furnished to the Secretary of the NMED upon request. A copy of the certification and supporting documentation will be maintained by DOE/NNSA LASO. The supporting documentation may include, for example, the following:

- Any significant variance from the approved activities and the reason for the variance
- A summary of all sampling results
- A quality assurance/quality control statement on analytical data validation
- The location of the supporting documentation file
- Storage or disposal location of hazardous/mixed waste resulting from post-closure activities.

G.1.6 Security

Because of the ongoing nature of waste management operations at LANL, security and administrative controls for the sites of land-based units will be under the care of the DOE/NNSA or another authorized federal agency during the post-closure care period. Site security will be maintained during that period to prohibit public access to the land-based units. Details of security measures are included in the land-based unit-specific closure/post-closure plans cited previously.

G.1.7 Survey Plat and Post-Closure Requirements [20.4.1 NMAC § 264.116 and § 264.117 through § 264.120]

A survey plat prepared in accordance with 20.4.1 NMAC § 264.116 [6-14-00] will be filed with the appropriate authorities at certification of closure. No later than 60 days after certification of closure of each land-based unit, LANL will submit to the County of Los Alamos and other authorized agencies and to the Secretary of the NMED a record of the type, location, and quantity of hazardous wastes disposed of within each regulated disposal unit. For hazardous wastes disposed of before January 12, 1981, LANL will identify the type, location, and quantity of the hazardous wastes to the best of their knowledge and in accordance with any records that have been kept.

Post-closure care pursuant to 20.4.1 NMAC § 264.117 through § 264.120 [6-14-00] will begin after closure of a regulated disposal unit is certified by LANL and approved by the NMED. Post-closure notices will be filed with appropriate authorities within 60 days of certification of closure of the first regulated disposal unit and within 60 days of certification of closure of the last regulated disposal unit, as described in 20.4.1 NMAC § 264.119 [6-14-00]. To meet that requirement, DOE/NNSA will file a "Land Use Restriction Notice" or equivalent document with the County of Los Alamos and other authorized agencies. The "Land Use Restriction Notice" will indicate that the land has been used to manage hazardous wastes and that its use is restricted under 20.4.1 NMAC, Subpart V, Part 264, Subpart G regulations. It will also indicate that the survey plat and record of the type, location, and quantity of hazardous wastes disposed of have been filed with the County of Los Alamos and other authorized agencies and with the Secretary of the NMED. LANL will also submit a certification to the Secretary of the NMED, signed by DOE/NNSA and LANL, that they have recorded the notation specified in 20.4.1 NMAC § 264.119(b)(1), including a copy of the document in which the notation has been placed.

Within 60 days after completion of the established post-closure care period for the regulated disposal unit, LANL will submit to the Secretary of the NMED, via certified mail, a certification of completion of post-closure care in accordance with the requirements of 20.4.1 NMAC § 264.120 [6-14-00]. Certification of completion of post-closure care is described in Section G.1.5.

In accordance with 20.4.1 NMAC § 264.117(c), post-closure use of property on or in which hazardous waste remains after partial or final closure will not be allowed to disturb the integrity of the final cover or any other components of the containment system, if present, or the function of the monitoring systems unless the Secretary of the NMED finds that the disturbance is necessary to the

proposed use of the property and will not increase the potential hazard to human health or the environment, or it is necessary to reduce a threat to human health or the environment.

G.1.8 References

EPA, 1998, "Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities: Post-Closure Permit Requirement and Closure Process; Final Rule," *Federal Register*, pp. 56710-56735.

Table G-1

**Current Land Disposal Units at Los Alamos National Laboratory
Subject to Post-Closure Requirements**

Unit	Associated Material Disposal Area (MDA)	Structure	Type
Area G Landfills	MDA G	Shaft 124	Landfill
		Pit 29	Landfill
Area H Landfill	MDA H	Shaft 9	Landfill
Area L Landfill	MDA L	Impoundment B	Impoundment/Landfill Cell
		Impoundment D	Impoundment/Landfill Cell
		Shaft 1	Landfill Cell
		Shaft 13	Landfill Cell
		Shaft 14	Landfill Cell
		Shaft 15	Landfill Cell
		Shaft 16	Landfill Cell
		Shaft 17	Landfill Cell
		Shaft 19	Landfill Cell
		Shaft 20	Landfill Cell
		Shaft 21	Landfill Cell
		Shaft 22	Landfill Cell
		Shaft 23	Landfill Cell
		Shaft 24	Landfill Cell
		Shaft 25	Landfill Cell
		Shaft 26	Landfill Cell
		Shaft 27	Landfill Cell
		Shaft 28	Landfill Cell
		Shaft 29	Landfill Cell
		Shaft 30	Landfill Cell
		Shaft 31	Landfill Cell
		Shaft 32	Landfill Cell
		Shaft 33	Landfill Cell
		Shaft 34	Landfill Cell